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ABSTRACT

Four sections and 142 references/bibliographic entries comprise this document that identifies, classifies, analyzes, and evaluates meta-research in adult education published in North America before 1982. (Meta-research is research on the research in a particular field; in this case, it is research on the research in the field of adult education.) The first section provides a classification system for meta-research in adult education, grouping the meta-research into the following six types: (1) inventories or registers of research; (2) general reviews of research; (3) critical or interpretive reviews of research on specific topics; (4) research agendas or taxonomies of needed research; (5) focused critiques of methodology; and (6) framework or paradigms for understanding or improving research. The second section analyzes the history of each of the six types of meta-research, as represented by 136 published examples of such research. The third section evaluates the contribution made by each type of meta-research to the field of adult education. The fourth section provides five recommendations concerning meta-research in general and eight recommendations that apply to specific types of meta-research. Bibliographic entries are organized by the type of meta-research that is their subject. (CML)

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META-RESEARCH IN ADULT EDUCATION THROUGH 1981: AN HISTORICAL ANALYSIS AND CRITICAL APPRAISAL

by

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Abstract

Meta-research is defined as systematic study of the processes and products of inquiry which characterize a discipline or field of study, or, more simply, research on research. The purpose of this study was to identify, classify, analyze, and evaluate adult education meta-research published in North America through 1981.

Reported in this article are (1) a typology of meta-research used to identify and classify documents for analysis, (2) results of an historical analysis of 136 pieces of meta-research, most published since 1950, (3) an appraisal of the impact meta-research has had on theory-building, and (4) recommendations for improving meta-research. An extensive bibliography of meta-research, listed by type, is provided.

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META-RESEARCH IN ADULT EDUCATION THROUGH 1981: AN HISTORICAL ANALYSIS AND CRITICAL APPRAISAL

Researchers in adult education have long understood the importance of developing a body of knowledge which can be used to guide practice. Giving direction to and monitoring the development of this knowledge base is accomplished in part through the mechanism of meta-research. Meta-research is defined as systematic study of the processes and products of inquiry which characterize a discipline or field of study, or, more simply, research on research. The importance of such activity seems axiomatic, for without continuing critical examination of research activities and outcomes adult educators would know neither if progress is being made in the development of a body of knowledge nor if methods of inquiry are appropriate. Glass, who developed methods for the meta-analysis of educational research data, has stated forcefully the need for meta-research.

> Knowledge about education is not increasing nearly as fast as is alleged, but the proliferation of the educational research literature is obvious. A body of literature can grow faster than a body of knowledge when it swells with false knowledge, inconclusive or contradictory findings, repetitive writing or simple dross. If knowledge is not subjected to scrutiny, it cannot be held confidently to be true. Moreover, if

> knowledge is to be "known" it must be "packed down" into assimilable portions either in reviews of literature or in textbooks. The integration of isolated research reports and the criticism of published works serve an essential purpose in the growth of a discipline. The organization and maintenance of old knowledge is no less important than the discovery of new knowledge. (2:324)

The purpose of this paper is to provide a report on the development of meta-research in adult education in North America and the impact it has had on adult education research. In the sections which follow, a typology of meta-research will be proposed, the chronological development of meta-research will be analyzed, the impact it has had on adult education research will be appraised, and recommendations will be made for the further development of meta-research.

A Typology of Meta-Research

The systematic study of research in adult education has taken several forms. The six types described below were inductively derived from an analysis of publications which conformed to the definition of meta-research. No argument is provided to support the veracity of the typology, since it was formulated to provide a structure for historical analysis rather than a permanent classification scheme for future meta-research.

Type I--Inventories or Registers of Research

If the members of a field of study are to monitor research activity, then they must first know who is doing research and on what questions their studies focus. Inventories or registers of research fulfill this need for basic information. Research inventories range in complexity from simple bibliographic entries which include the name of the investigator, title of the study, and where additional information can be obtained to entries which, in addition to the above data, provide a complete abstract of each study and arrange them by topic for more efficient access. The intent of an inventory is not to interpret or summarize research; it is simply to make widely known what work, either completed or in progress, is being done and by whom.

Type II--General Reviews of Research

Periodically, members of a developing field take stock of their research activities by conducting a broad review of all research completed during a specified time period. To accomplish this, qualitative judgments must be made to separate significant from trivial and generalizable from local results. The purpose of such a broad review is to summarize completed work, to form useful generalizations, and to pass judgment on whether or not progress is being made. If well done, such reviews prevent needless repetition of research, save investigators time in identifying relevant literature, and highlight important findings with broad implications for the field.

Type III--Critical or Interpretive Reviews of Research on Specific Topics

While general reviews of research assess progress for the field as a whole, critical reviews on specific topics focus on much more narrow questions or problems. Because they have a narrow focus and because those who do them are frequently specialists on the topic, these studies are state-of-the-art reviews which are typically much more detailed and critical of research than general reviews. Although some mention may be made of research methodology, the emphasis is on analysis of findings and generalizations derived from the findings.

Type IV--Research Agendas or Taxonomies of Needed Research

Although it is not uncommon to find suggestions for further research as a component of many studies, the factor which differentiates those statements from Type IV meta-research is that research agendas or taxonomies are developed for the expressed purpose of stimulating research activities in the field. They may or may not include a review of research and are most often authored by researchers who are thoroughly familiar with the field and its existing knowledge base.

Type V--Focused Critiques of Research Methodology

These studies vary from the others in that they are more concerned with specific research methodologies rather than findings. They may emphasize the abuses of a methodology and offer suggestions for correct use; they may argue that a particular methodology is

not appropriate for use in adult education; or they may suggest that a particular methodology is underutilized in adult education and point out research problems for which a specific methodology is appropriate.

Type VI--Frameworks or Paradigms for Understanding and Improving Research

Independent of specific research methodologies and findings, members of a growing field of study should be interested in understanding the nature of their research activities and in means to improve those activities. Type VI meta-research assists the field by explaining the goals, conduct, types, impacts, or problems of research and identifying areas in which improvement is needed.

Each of the studies reviewed can be placed comfortably in one of these types. The multiple purposes of some studies make the classification process a bit difficult. But if the primary purpose of the study is made clear, and the classification made on the basis of that purpose, the typology should retain its integrity.

The Historical Development of Meta-Research

If the literature of adult education accurately reflects concerns of the field, then research was not much of a concern prior to 1950. Of the first three Handbooks of Adult Education published in 1934 (4), 1936 (5), and 1948 (1), only the third contained any reference to research, and that one only chastised government

research bureaus for lack of interest in civic education. Beginning in 1950, however, the literature reflected a growing desire for sound research and the resulting knowledge that it would produce. In the following sections, the historical development of each type of meta-research will be examined and examples provided to illustrate each type.

Type I Development--Inventories or Registers of Research

One form of inventory of adult education research has been compiled continuously since 1955 under the aegis of the Adult Education Association of the U.S.A. (AEA). For the first five years, it was published in Adult Education as an annual "Research Review" prepared by Abbott Kaplan (30)(31)(32)(33)(34)(35). As was pointed out by DeCrow in the 1960 compilation (13), these were not reviews at all but simply listings of research studies in progress or completed during the previous year. In 1960, the title of the compilation was changed to "Research and Investigations in Adult Education" and remained under the editorship of Roger DeCrow for the years 1960 (13) and 1961 (14). In 1962, Wilson Thiede became editor and remained so, with assistance from others, through the 1966 issue (40)(41)(42)(43)(44). The year 1967 saw the establishment of the ERIC (Educational Resources Information Center) Clearinghouse on Adult Education at Syracuse University which accepted responsibility for compiling the annual research register. In 1967 the register was again published in Adult

Education (15) but thereafter was published separately. Annual compilations were produced by DeCrow and Grabowski for research published from 1968 through 1972 (16)(17)(18)(26)(27). The demise of the Clearninghouse on Adult Education and consolidation of its data base with that of the Clearinghouse on Career Education coincided with the decision to publish the Register on a less periodic basis. In 1977, a volume was published which included research reported in 1973-1975 (38). A volume edited by Sork published in 1979 covers the calendar years 1976-1978 (39).

The content of the Register has changed dramatically since it was initiated in 1955. At that time, it was compiled by sending questionnaires to individuals involved with research (primarily professors of adult education) and included both degree-related and non-degree research both in progress and completed. In 1967, in-progress research was dropped in favor of reports of completed research. Reports of research dealing with agricultural extension were dropped because the Federal Extension Service published a similar register of its own (45). The results of dissertation research were dropped from the Register when it was decided to publish separate volumes of dissertation abstracts for the years 1935-62 (28), 1963-67 (19) and 1968-69 (29). When the ERIC Clearinghouse took responsibility for compiling the Register in 1967, the questionnaire system of soliciting entries was eliminated in favor of the more efficient computer data-base search. By the

time the 1979 edition was being compiled, the sheer volume of potential entries was so large that the only data base searched was the ERIC system itself. Even with the constant deletion of potential entries, the number of research reports has climbed steadily over the years. As the number of potential entries has continued to climb, editors have developed their own unique set of selection criteria and sorting procedures for deciding what research should be included. As a consequence, it is difficult to determine how well the Register represents the amount and types of research being completed.

In addition to the AEA/ERIC-sponsored inventories of research, several other organizations and institutions have assembled similar publications, although not with the continuity of AEA/ERIC efforts. In Canada, a comprehensive inventory of thesis research has been compiled by Draper for the period 1938-1980 (22). Other less ambitious inventories of research completed by students working on graduate degrees have been compiled by Draper, Niemi and Touchette (24), Draper and Yadao (25), Canadian Association for Adult Education (11), Draper and Field (23), and Narang (37). Non-degree research has been compiled by the Canadian Association for Adult Education for the years 1969-70 (10) (11). Other inventories of research in Canada include compilations by Dickinson of work done at the University of British Columbia (20) and by Draper of work done at The University of Toronto (21). Similar compilations have been

made for at least three universities in the United States (12)(36)(46). Inventories of research conducted by adult educators in specific regions have been compiled by Burrichter and Jensen for the mountain-plains area (9) and by Boshier (7) and Boshier, Thiesfeld and Dickinson (8) for the Pacific Northwest.

Type II Development--General Reviews of Research

The first general review of adult education research identified in this study was a brief section written by W.S. Bittner in the 1941 first edition of the Encyclopedia of Educational Research (51). Two subsequent editions of the volume published in 1950 and 1960 contained similar sections written by Bittner (52) and Andrew Hendrickson (61). In 1950 the first major review of adult education research was published as a topical issue of the Review of Educational Research (47). Subsequent special issues on adult education research were published in 1953 (48), 1959 (49), and 1965 (50) each emphasizing a somewhat different set of research questions. Before a fifth review was published, the editorial policy of this journal changed eliminating the topical issue format.

A milestone in Type II meta-research was reached in 1959 with the publication of An Overview of Adult Education Research. The stated purpose of this book-length review of research on nonvocational adult education was to identify "any generalizations on which policy could be based, and which could be offered for the

guidance of those preparing to be professional adult education workers on either a full- or part-time basis" (53:IV). Research reports considered for inclusion in this book numbered between 4-5,000, of which over 600 titles were cited in one or more of the book's fourteen chapters. Financing for this massive effort was provided by the Ford Foundation Fund for Adult Education. It may be viewed as a positive factor that no similar review has been published since. The proliferation of research in the 1960's may have rendered impractical such a general review of research conducted by adult educators and those in related fields.

Other less elaborate reviews have been developed over the years, usually for the purpose of assessing the general direction of research activities. Kreitlow prepared chapters on research for the 1960 and 1970 editions of the Handbook of Adult Education which served this purpose (62)(63). Grabowski and DeCrow, who served as directors of the ERIC Clearinghouse on Adult Education, had unique perspectives on the progress of research and made periodic reports during their tenure (54)(55)(57)(58). Other observers of research activity have issued similar reviews, albeit with a more narrow focus and purpose (56)(59)(60)(64)(65)(66).

Type III Development--Critical Reviews on Specific Topics

Substantive critical or interpretive reviews of research on specific topics seems to be a neglected form of meta-research in adult education. As might be expected, the early reviews of research

focused on adult development and learning (69)(74). These studies were particularly useful because the early research literature was spread over a wide range of disciplines. A concern with characteristics of the adult and environmental factors which affect learning has resulted in the publication of at least six book-length reviews of the literature on adult learning in the past twenty years (68)(72)(75)(76)(77)(83). When the scope of topical reviews reaches the point where a book-length format is required for publication, members of the field of study should feel a sense of accomplishment since a large volume of research findings is necessary to warrant such an effort.

Although not of book-length, other reviews have focused directly on research related to adult development and learning (78)(79)(86). Of somewhat less ambitious scope and more narrow focus have been reviews related to mental abilities and aging (71) and adult cognition (80).

Aside from the topic of adult learning, though, there are relatively few examples of Type III meta-research to be found in the literature. A few notable exceptions include reviews of research on the lecture as a technique of instruction (90), the problem of completions and drop outs (89), the technique of group discussion (85), evaluation (87), the concept of educational need (84), adult learning projects (88), behaving-valuing patterns of low status people (67), philosophical perspectives (81), middle age (82),

participation of the poor (70) and counseling adult learners (73).

It is easy to speculate on why more Type III meta-research has not been developed, but difficult to identify the most valid reasons. Generating reviews of topic-specific research is considered a required step prior to any research project. Such activity may then be viewed simply as a preparatory step to "real" research and not rewarded equally with activities which result in the generation of original data. Another reason may be that such reviews are difficult to conduct. Locating all the relevant research on a specific topic is not an easy task even in an age of computer-access data bases. Moreover, once studies are located, they must be analyzed using a consistent framework--a difficult process given the myriad conceptual formulations, research designs, and reporting formats evident in so much behavioral science research. A third reason may be the limited publication outlets available for such works. The primary research journal in the field, Adult Education, publishes approximately twelve articles per year. Although interpretive reviews of the literature are listed as one of the journal's emphases, they constitute a relatively small percentage of published articles. With the exception of reviews of adult development and learning, most Type III meta-research has been reported since the mid-1960's.

Type IV Development--Research Agendas or Taxonomies of Needed Research

Serious attention was first given to identifying and cataloging

the research needs of the field in the early 1960's. In 1960, Brunner published one of the first listings of research needs based on his Overview of Adult Education Research (94). Soon after the publication of Brunner's list, Boone and Duncan (93), Houle (95), Kreitlow (97) and Knox (99) produced research agendas of their own. Kreitlow's taxonomy of needed research, which was based on a study carried out in 1963-64, is particularly interesting from a historical standpoint because the research needs identified therein were compared ten years later to research which had been completed. Commenting on his earlier taxonomy, Kreitlow observed the following:

> In the 1964 report, research needs were identified as Priority, High Priority, and Needed. Yet, if my perusal of the research accomplishments of the last ten years is correct, we've treated them all much the same--by virtually ignoring them all. (98:231).

Such an observation clearly calls into question the impact that Type IV meta-research has on research production. Kreitlow's conclusion notwithstanding, lists of research needs continue to be produced with the hope that they will somehow provide guidance to scholars in the field or suggest to funding agencies research questions deemed worthy of support. Knox, without commenting on the impact of his list published twelve years earlier, produced another list in 1977 (100). And the Advisory Panel on Research Needs in Lifelong Learning During Adulthood, associated with the

Future Directions for a Learning Society project of the College Entrance Examination Board, published a widely disseminated agenda for research in 1978 (91). More recently, Bhola (92) and Kidd (96) presented their perspectives on what research needs exist in the field.

With the exception of the follow-up observations made by Kreitlow, little effort has been made to assess the utility of Type IV meta-research. The questions of who uses these lists and for what purposes remain unanswered.

Type V Development--Focused Critiques of Research Methodology

Critiques of research methodologies used in adult education research are clearly a relatively recent development. Commentaries on methodology published prior to the 1970's seemed to simply admonish adult educators to be more "scientific" in their approach and to reduce the quantity of purely descriptive (and other less generalizable) research. Carlson (103) emphasized the complementarity of history and social science approaches in adult education research. Henschke (112) provided a critique of the historical method as used by adult educators. The advantages and disadvantages of participatory research were debated by Hall (110)(111), Lindsay (115), Griffith and Cristarella (109), and others (121). McKenzie (117)(118) proposed the analysis of literature as a supplement to more traditional research methods. Forest and Flitter (108) encouraged the use of content analysis for both research and

evaluation in adult education. Research applications of the critical incident technique were explored by Oaklief (120). Pilsworth and Ruddock (122) identified weaknesses of survey research. Mezirow (119) described the fundamentals of grounded theory and suggested it would be a useful research approach to generate theory in adult education. Boshier (101) studied the uses and abuses of factor analysis in studies of adult motivation and explored methodological issues in research on participation (102). The methodology of comparative adult education was discussed by Carlson (104), Kidd (113)(114), and Roberts (123). In 1980 the first hardcover book written by adult educators and devoted primarily to research methodology was published as a volume in the AEA Handbook Series. Within this volume individual chapters are devoted to humanistic historical research (105), field research and grounded theory (106), survey research (107), and experimental research (116). Publication of this book suggests that the 1970's was a decade of awakening of adult educators to the methodological diversity required to conduct research in a complex and rapidly changing field and the importance of thoroughly understanding the proper use and limitations of the methodologies they employ. The considerable attention given to methodological issues during this period augurs well for the field since it reflects a growing sophistication in selecting and utilizing standard tools of inquiry.

Type VI Development--Frameworks or Paradigms for Understanding and Improving Research

Efforts to understand and improve research activities greatly accelerated during the 1970's. Much attention was given to the journal Adult Education presumably because it is viewed as the premier outlet for research by adult educators in North America, even though Long (135) reported that a sample of 81 professors of adult education had published 338 different journals. Dickinson and Rusnell (131) performed a content analysis of the journal from volumes 1-20. Long and Agyekum (134) studied the kind, content, and authorship of articles published between 1964-1973. Boshier and Pickard (129) analyzed the citation patterns of articles published between 1968-1977 in an attempt to determine if adult educators were progressing in their efforts to develop a unique body of knowledge.

Another approach to understanding part of the research enterprise was a comparison by Long (135) of the publication activity of selected members of the Commission of Professors of Adult Education with that of other academics. Apps (124), Knowles (133), and Williams (142) have explored fundamental assumptions underlying the definition of research and proposed broader perspectives. Griffith et al. (132), Apps (125)(126), Beder and Darkenwald (127), Scissons (140), and Long (136) have studied the development of adult education research and provided perspectives on how it should develop in the future. Boyd (130) and Long and Hiemstra (137)

provided suggestions on how the research process can be carried out more fruitfully, and Walter (141) has exposed some underlying assumptions which may limit the validity of findings related to adult development. The development of theory and its relationship to practice has been explored by Boshier (128), Ohliger (138), and Phillips (139).

Each of these contributors has offered a perspective on the research process designed to help understand or improve the research enterprise. The history of Type VI meta-research is brief, but the concentration of activity in the past decade suggests that more efforts to understand and improve research in adult education will be forthcoming in the years ahead.

Although the earliest piece of meta-research identified in this study was published in 1941, the great bulk of meta-research has been published in the last twenty years. As shown in Table 1, 56% of the studies have been published since 1972. It is interesting to note the rather even production of Types I and II and the quite recent development of Types V and VI.

Insert Table 1 about here

The growth of all types of meta-research, when taken together, suggests that the period 1982-1986 should be a fertile one.

TABLE 1.

PUBLICATION FREQUENCY OF META-RESEARCH BY TYPE,
1947-1981, IN FIVE-YEAR INTERVALS

	Type of Meta-Research							
Interval	I	II	III	IV	V	VI	Total	%
1947-51	1	2	0	0	0	0	3	2.2
1952-56	3	2	1	0	0	0	6	4.5
1957-61	5	4	1	1	0	0	11	8.2
1962-66	6	1	5	3	0	0	15	11.2
1967-71	13	4	1	1	3	1	23	17.2
1972-76	8	3	5	1	11	6	34	25.4
1977-81	3	3	11	4	9	12	42	31.3
Total	39	19	24	10	23	19	134*	100.0

*Documents included in this analysis total 136. One was published prior to 1947 and another had no date of publication.

A Critical Appraisal of Meta-Research

Each type of meta-research serves a somewhat different function for a growing field like adult education. One of the principal purposes of this study was to appraise the utility of North American meta-research in adult education. Based on an analysis of the content and historical development of meta-research reported in the last thirty-five years, a number of qualitative judgments can be made about the usefulness of each type.

Type I meta-research--inventories or registers of research--must be useful to adult educators or less of it would be done. The continuity of its production since the 1950's seems ample evidence that someone must find it helpful in identifying research and researchers concerned with the same questions. But there do appear to be some problems in conducting this type of meta-research. First, the sheer volume of studies of potential interest to adult educators has increased substantially in the past ten years. In order to make the publication of research registers an economically feasible project, the ERIC system has continually narrowed the sources from which studies are identified. The most recent Register (39) was compiled using only the ERIC data base. This practice is based on the assumption that most research in adult education will find its way into the ERIC system. But opinions of those involved with this system suggest that this assumption may be rather tenuous.

From the annual compilations of doctorates awarded in adult

education, it can be deduced that there are approximately 175 dissertations completed each year which deal with issues of potential interest to adult educators. Because dissertations are no longer included in the ERIC registers and because no separate volume of abstracts has been published since 1971, researchers are left with the responsibility to identify studies related to their own interests. Without a complete inventory of dissertation abstracts, it is quite difficult to discern research trends in graduate education programs. It would be interesting to determine how much dissertation research finds its way into publications accessible to adult educators. Long and Agyekum (134) estimated that during the period 1964-73 only three percent of the 800 dissertations written in North America were represented by articles published in Adult Education. If their estimate is correct, then a distressingly low percentage of adult education dissertation research is published in the best known research journal in North America.

A final problem with Type I meta-research is that, increasingly, editors who compile the inventories are applying more and more selective criteria to sort out what should and should not be included. This trend, though unavoidable because of economic concerns, means that the research which is inventoried has passed through a set of filters on the way to consumers. If the necessity of making qualitative judgments continues--and there is no reason to suggest that

it will not--registers of research may evolve into a hybrid somewhere between Type I inventories and Type II general reviews. Because the editors of these publications are in a position to define, by example, what adult education research is, it is incumbent upon them to make explicit the criteria they use to include or exclude research from the registers.

Type II meta-research--general reviews of research--too has suffered from growth of the field. Not since 1965 when the Review of Educational Research published the last single topic issue on adult education has a comprehensive review of research been reported. This may be viewed positively for several reasons. First, it may simply indicate that the field has grown too diverse and large for such an effort to be practical. Second, it may suggest that knowledge is expanding so rapidly that a general review might be rendered obsolete before it goes to press. Third, it may suggest that the needs which such general reviews were developed to meet may be satisfied through other forms of meta-research.

Type III meta-research--reviews of research on specific topics--may be the mechanism through which the limitations of Types I and II can be overcome. It is clearly feasible to conduct a thorough review of specific research topics in adult education, especially using the multiple computer-access data bases available to most researchers. Although the percentage of editorial space

in Adult Education devoted to such reviews has grown steadily over the years (131) more should be done to encourage such analyses. But in doing so, more attention should be given to reducing what may be the greatest single threat to validity of such work--the selection of studies to be included in the review.

When reviews of research are part of a larger study in which hypotheses are tested, the criteria for selection of studies can be quite narrow. Reviews designed to stand alone, however, should represent the entire range of research conducted on the topic. The importance of using a well-developed methodology for such reviews and the consequences of not doing them systematically has been clearly stated by Jackson:

> The lack of explicit methods for doing integrative reviews is a serious problem for at least four reasons. First, the lack of explicit methods appears to be in large part the result of social scientists failing to give much thought to such methods, and thus it probably means that they are not using as powerful methods as could be developed for accumulating social science evidence. Second, it makes it difficult to have standards for judging the quality of integrative reviews. Third, it makes it difficult to train graduate students to do competent research reviews. Fourth, the lack of review methods hinders the accumulation of valid knowledge from previous

research. (3:3)

A common fault in many reviews of adult education research is that the authors do not specify whether the studies included in the review constitute a population or a sample. If the studies reviewed are the population, then, as in any research study, the need to make inferences is reduced. If, on the other hand, the studies reviewed constitute a sample of the population, it is incumbent upon the reviewer to explicate the criteria and methods used to select the sample. Because the potential impact of generalizations made in such reviews is great, the reviews should be subjected to a rigorous evaluation before being disseminated.

Type IV meta-research--agendas or taxonomies of needed research--seems to be of questionable value if its primary purpose is to stimulate research activity. If substantial public or private funds were available to assist in the development of research thrusts, then such listings may well be of use. But with few exceptions, major funding for adult education research has not been forthcoming.

The true benefit of Type IV meta-research may be in identifying those research questions which, in the judgment of adult education researchers, are in <u>their</u> domain. By pointing to a taxonomy of needed research, the adult educator can lay claim to an area where new knowledge is needed and, whether or not there is any intent of immediately researching these questions, use them to define or

expand the boundaries of the field. And, if the time ever comes when substantial financial support for research is available, the field will be ready with its list of researchable questions.

Identification of research needs should be pursued with care lest they proliferate with little attention to process or consistency of priorities. Knox (99) identified five influences which effect the priority given to particular needs. They are (1) researcher interests, (2) emphases and gaps in available research findings, (3) preferences of leaders, (4) problems in practice that call for research, and (5) preferences of agencies that support research. How the findings of Type IV meta-research are interpreted is dependent, in part, on the process used to generate the research needs. If this information is not provided and the sources of priorities identified, confidence in the findings is diminished. As in any systematic inquiry, the method used should be clearly and completely described so that consumers of the research can decide for themselves whether or not the findings are worth attending to.

Type V meta-research--critiques of research methodology--is extremely important in a developing field of study with a relatively short history of research. Many questions of interest to adult educators are apparently not easy to research. It is also apparent that adult education research is conducted using a wide variety of methods. If the literature of the last ten years is a valid indicator, there seems to be an increase in the use of qualitative

research methods, especially those based on inductive reasoning. Because much of graduate education emphasizes quantitative and deductive methods of inquiry, this type of meta-research makes an important contribution by describing methods which may be unfamiliar to researchers. Also, by pointing out incorrect or questionable usage of specific methodologies, the process of research should be improved.

It may be too early to judge the impact of Type V meta-research because most of it has been done in the past ten years. If it is having a positive impact on the field there should soon be evidence of wider use of suggested methods and less abuse of all methods.

Type VI meta-research--frameworks or paradigms for understanding and improving research--seems to be neglected and deserving of greater attention. How research is defined, the means used to improve it, and methods employed to study it have received some attention in the literature. But these issues are at the heart of the research enterprise and should be developed in much more depth. Ethical issues faced by adult education researchers have received scant attention as has the continuing problem of translating research findings into forms usable by practitioners. Much work remains to be done before a consensus is reached on the ends and means of adult education research.

Recommendations

The service performed for the field of adult education by meta-researchers is an essential one. Continued improvement in research activities is necessary if a useful knowledge base is to continue evolving. Good research produces valid knowledge on which sound decisions can be based. Sowell, in describing the relationship between knowledge and decisions, observed that

> Knowledge may be enjoyed as a speculative diversion, but it is needed for decision making. The genesis of ideas and the authentication of knowledge are part of a continuous process which ultimately brings knowledge to bear on decisions--when the system is working ideally. In real life, the process may, of course, fail to bring knowledge to bear, when accurate knowledge is available somewhere in the system. What matters, then, is the knowledge actually used at the decision-making point, not the knowledge in process of development or authentication, nor even the knowledge clearly apparent to particular individuals or organizations somewhere in society. (6:11)

The process of moving from an idea to knowledge to decision making is complex and time consuming. Each of the six types of meta-research described in this article contributes to this process. These contributions are made by (1) identifying and codifying existing knowledge, (2) synthesizing and evaluating existing

knowledge, (3) proposing areas where knowledge is lacking, (4) evaluating the methods used to generate knowledge, or (5) suggesting means for understanding and improving knowledge-generating activities.

Even though a great deal of meta-research has been done in adult education, improvements can be made in both its quantity and quality. Following are recommendations for the quantitative and qualitative improvement of meta-research. The first set of recommendations applies to meta-research generally; the second set applies to specific types of meta research.

General Recommendations

1. Meta-research methodology remains rather ill-defined. When undertaking any type of meta-research, the method used and the limitations of that method should be made explicit. The potential impact of meta-research is great because it transcends individual reports of research findings. It is, therefore, incumbent upon authors to clearly specify the methodology they employ.
2. A well-balanced meta-research program should include continued work in each of the six types. The historical development across types has been somewhat uneven, but future development should reflect a balance among types and the natural complementarity between them.

3. Some forms of meta-research, primarily Types I and II, require extensive effort and resources to produce. It would seem useful to develop a system, within the profession, to (a) assure that this research is carried on independent of any single individual or institution and (b) to garner the resources needed to produce the research. This system could also provide a quality-control check for resulting publications.
4. Periodic detailed analyses of each type of meta-research should be conducted to determine if overall progress in research is being made and if the meta-research itself is making a useful contribution to the developing knowledge base. Trends in the production of meta-research are an indicator of progress in research generally. If the production of meta-research slows--especially Types II, III, and V--then it is a likely indicator that the production of other research has decreased since if there is no new research, there is little to review or criticize.
5. Methods should be developed to study the impact of meta-research. Little is known about the extent to which the various types are used by researchers and practitioners in adult education, and in related fields. If more was known about how it is used and by whom, meta-research

might be made even more useful than it is at present.

Type-Specific Recommendations

1. When preparing inventories or registers of research (Type I) specify the method used to identify the population of studies considered for inclusion, and the criteria and process used to select those which are actually included. The quantity of research studies of potential interest to adult educators has grown to the point where it is not economically feasible to publish in one document summaries of studies identified from even a select group of data bases. Because the selection process involves human judgment, it is incumbent upon the compiler to specify the method used to make those judgments.
2. When inventories of research are compiled, it would be helpful if the compiler would provide a descriptive summary of the items included in the inventory. Such a summary would make it easier to monitor the quantity of studies produced over time which address similar research questions.
3. Inventories of research should include an abstract or annotation of each item included and information on where documents can be obtained. Titles do not always provide enough information to determine whether or not a study is of interest, and it does little good to know that a study

exists if it cannot be obtained.

4. Reviews of research, whether general (Type II) or specific (Type III), should state clearly how the studies included in the review were selected. It is not a difficult task to select a set of studies which supports pre-conceived conclusions. But such reviews provide a disservice to the field and should not find their way into widely-read publications. A clear statement of selection processes provides the reader with a basis for judging the validity of generalizations drawn from the literature reviewed.
5. More reviews on specific topics (Type III) should be encouraged. Although the percent of editorial space in Adult Education devoted to interpretive reviews of the literature has increased over the years, the percentage reflects a small absolute number of articles. One way this encouragement could be provided is to designate specific issues of each volume as "review" issues. The ERIC Clearinghouse should be encouraged to continue its sponsorship of single-topic reviews of research. The American Association for Adult and Continuing Education, or other professional associations, could sponsor an annual review volume independent of its other publications, which would include comprehensive research reviews on three or four special topics of particular interest to the membership.

6. Taxonomies of needed research (Type IV) should indicate the origins of the needs and the means used to determine priority among the needs. Also, it may be helpful to state the needs in relation to problems encountered in the practice of adult education. Needs so grounded in practice may elicit more support than others generated using abstract conceptual formulations with unclear relationships to practice.
7. Critiques of research methodologies (Type V) should be encouraged, but how this could be accomplished remains unclear. Understanding the complexity of adult education requires a myriad of research tools. Knowing which tools exist and how they are appropriately used will allow investigators to continue developing a reliable knowledge base. Without Type V meta-research, the process of inquiry could soon become method-bound and unable to address difficult unanswered questions.
8. Frameworks or paradigms for understanding and improving research (Type VI) constitute the most diverse type of meta-research. Thus far, most of the work has been produced without reference to the work of other adult educators--a phenomenon explainable by the relatively rapid and recent development of the literature. If the field is to benefit fully from the diverse perspectives

represented in this work, it will be useful if future authors acknowledge the existence of this growing literature, and compare and contrast their work with that of others.

Sowell (6:3) has observed that "Ideas are everywhere, but knowledge is rare." Meta-research in adult education has made an important contribution to the process of separating knowledge from ideas. But knowledge continues to be rare in adult education when compared to problems encountered in practice. The role of meta-research in producing a more desirable ratio between knowledge and problems seems well established. Encouraging the production and dissemination of high quality meta-research in adult education should produce important benefits for the field. A status report, similar to this one, published five years hence, should reveal the degree to which meta-research is fulfilling its potential.

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